REMARKS

Applicants have canceled claim 169. No new matter has been added.

Claims 141-144; 146-168; and 170-172 are pending.

I. Rejections Under 35 U.S.C. §§ 101 and 112, First Paragraph

The Examiner maintains the rejection of claims 141-144 and 146-172 under 35 U.S.C. §§ 101 and 112, first paragraph because the claimed invention is allegedly not supported by either a substantial asserted utility or a well established utility. The Examiner alleges that "the specification fails to assert if the claimed protein is over-expressed or under-expressed in any of the stated diseases." The Examiner further alleges that "the condition of perhaps being over expressed or perhaps being under-expressed does not provide for a specific, substantial assertion." Although the Examiner acknowledges that the specification "links the claimed sequences with asthma," the Examiner alleges that the assertions of utility found in the specification are not specific "because the positive or negative impact of the sequence on the disease has not been asserted." Moreover, although the Examiner also acknowledges that the combination of references previously cited by Applicants "corroborate treatment and diagnosis of asthma," the Examiner alleges that such references "cannot overcome the deficiency of the specification in its lack of an assertion of specific and substantial utility."

In response, Applicants respectfully disagree and traverse. As acknowledged by the Examiner, the specification clearly provides assertions of utility regarding use of the claimed polypeptides in diagnosis and treatment of asthma. See, page 27, lines 20-25; page 29, lines 3-5; and page 30, lines 14-18. Applicants respectfully insist that the asserted utilities may not be merely dismissed as "not specific" based on the Examiner's argument that "the positive or negative impact of the sequence on the disease has not been asserted."

According to the Utility Examination Guidelines, the test for specificity is whether an asserted utility is specific to the subject matter claimed, in contrast to a utility that would be applicable to the broad class of the invention, such as use of a complex machine for landfill. *See*, Utility Examination Guidelines. The disclosed utilities for the polypeptides discussed above are specific, in that not every protein may be used to, for example, treat asthma. The skilled artisan would most certainly not consider such a use to be a "throw-away utility" such as landfill. Thus,

using the USPTO's own published description of a specific asserted utility, the claimed polypeptides are specific because (1) they are specific for the subject matter claimed (e.g., not all polypeptides have uses in the treatment or diagnosis of asthma) and (2) the specification discloses a disease or condition which can be treated or diagnosed (e.g., asthma).

While put forth as a rejection for alleged lack of specificity, it appears that the instant assertions of utility are being rejected as not credible due to the alleged "defect" of failing to "assert if the claimed protein is over-expressed or under-expressed in any of the stated diseases."

Applicants respectfully disagree. As an initial matter, Applicants point out that "an applicant's assertion of utility creates a presumption of utility that will be sufficient to satisfy the utility requirement of 35 U.S.C. 101." M.P.E.P. § 2107.02(III)(A); *see also*, In re Langer, 503 F.2d 1380, 1391, 183 USPQ 288, 297 (CCPA 1974). "Where an applicant has specifically asserted that an invention has a particular utility, the assertion cannot simply dismissed as 'wrong.'" M.P.E.P. § 2107.02 (III)(B). "Office personnel should not begin by questioning the truth of the statement of utility. Instead, any inquiry must start by asking if there is any reason to question the truth of the statement of utility. This can be done by simply evaluating the logic of the statements made.." M.P.E.P. § 2107.02. Further, the PTO must accept the manner of making and using an invention disclosed in a specification "unless there is a reason for one of skill in the art to question the objective truth of the statement of utility or its scope." In re Langer, 183 U.S.P.Q. at 297; *see also, In re* Marzocchi, 58 C.C.P.A. 169 U.S.P.Q. 367, 369 (C.C.P.A. 1971) *and Utility Examination Guidelines*, 66 Fed. Reg. 1092, 1098-99 (Jan. 5, 2001). Indeed, the Federal Circuit has characterized the standard for utility by indicating:

> The threshold of utility is not high: An invention is "useful" under section 101 if it is capable of providing some identifiable benefit. *See Brenner v. Manson*, 383 U.S. 519, 534 (1996); *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571 (Fed. Cir. 1992) ("To violate § 101 the claimed device must be totally incapable of achieving a useful result"); *Fuller v. Berger*, 120 F. 247, 275 (7th Cir. 1903) (the test for utility is whether the invention "is capable of serving any beneficial end").

Juicy Whip, Inc. v. Orange Bang Inc., 51 U.S.P.Q.2d 1700, 1702 (Fed. Cir. 1999).

Accordingly, the burden is on the Examiner to establish why it is more likely than not that one of ordinary skill in the art would doubt (*i.e.*, "question") the truth of the statement of utility. *See,* M.P.E.P. § 2107 at 2100-30; *In re* Brana, 51 F.3d 1560, 34 U.S.P.Q.2d 1436 (Fed. Cir. 1995); and, *In re* Cortright, 49 U.S.P.Q.2d 1464, 1466 (Fed. Cir. 1999). The Examiner must

provide evidence sufficient to show that the statement of asserted utility would be considered "false" by a person of ordinary skill in the art. *See id.* Such a *prima facie* showing must contain (1) an explanation that clearly sets forth the reasoning used in concluding that the asserted utility for the claimed invention is not specific, substantial, and credible; (2) support for factual findings relied upon in reaching this conclusion; and (3) an evaluation of all relevant evidence of record, including utilities taught in the closest prior art. *See id.* Moreover, if applicants have presented reasoning used in asserting a utility, the Examiner must present countervailing facts and reasoning sufficient to establish that a person of ordinary skill would not believe the Applicants' assertion of utility. *See id.*

Applicants respectfully suggest that none of the Examiner's assertions demonstrate why a person of ordinary skill would not believe the Applicant's assertions of utility were specific and thus do not meet the burden that is necessary to establish and maintain a rejection for lack of utility under 35 U.S.C. § 101.

Even assuming *arguendo* that the Examiner has made a *prima facie* rejection for lack of utility, Applicants have successfully rebutted the rejection by providing evidence supporting Applicants' originally asserted utilities. Applicants respectfully point out that subsequently-generated data (*e.g.*, the previously cited Sat et al. and Hirashima et al. references) can be used to support the credibility of a utility asserted in the specification. As the Federal Circuit held in *In re Brana*, evidence dated after the filing date "can be used to substantiate any doubts as to the asserted utility since this pertains to the accuracy of a statement already in the specification." 51 F. 3d. 1560, 1567 at n.19 (Fed. Cir. 1995). Such evidence "goes to prove that the disclosure was in fact enabling when filed (*i.e.*, demonstrated utility)." *Id., citing In re Marzocchi*, 439 F2d. at 224 n.4, 169 U.S.P.Q. at 370 n.4. As stated by the Examiner, the above references "corroborate treatment and diagnosis of asthma" as asserted by the Applicants. Accordingly, Applicants submit that the assertions of utility provided in the instant specification are specific, substantial and credible. Thus, it is respectfully requested that the Examiner's rejections of the claims under 35 U.S.C. §§ 101 and 112, first paragraph be reconsidered and withdrawn.

II. Rejection Under 35 U.S.C. § 112, First Paragraph - Enablement

The Examiner maintains the rejection of claims 141-144 and 146-172 under 35 U.S.C. § 112, first paragraph, alleging that the specification "fails to teach how to use said broadly

claimed fragments of SEQ ID NO:4." The Examiner alleges, *inter alia*, that the art (Burch WO03/084467) recognizes "putative epitopes can be predicted using a computer to scan the sequence of a protein for amino acid sequences that contain a 'motif' or a defined pattern of amino acid residues associated with a particular MHC allele, but that the vast majority of these predicted epitopes fail to be immunogenic (page 5, lines 18-21)." The Examiner then asserts that specification does not teach how to use such alleged non-immunogenic fragments and thus undue experimentation would be necessary to use the broadly claimed fragments. The Examiner cites to Section 2124 of the M.P.E.P. alleging that "the MPEP supports the use of post-filing date references to support a rejection based upon undue experimentation, which is the fact pattern in the instant rejection under 112, first paragraph regarding fragments of SEQ ID NO:4."

As a preliminary matter, Applicants note that the Examiner states that the rejection of claims 141-144 and 146-172 is maintained for reasons of record. However, only claims 166-172 had been previously rejected; thus, Applicants believe that the instant rejection of all pending claims under 35 U.S.C. § 112, first paragraph for alleged lack of enablement is in error as claims 141-144 and 146-165 are not directed to fragments. Applicants address this rejection below, to the extent that it applies to pending claims 166-172. If rejection of claims 141-144 and 146-165 was intended, Applicants respectfully request clarification.

Further, Applicants respectfully note that the Examiner's conclusion appears to go beyond that actually taught by the cited Burch reference. Burch is concerned with computer predictions utilizing motif searches to identify epitopes associated with a predicted MHC allele. Burch teaches that the majority of epitopes predicted by such pattern searching fail to be immunogenic. The conclusions found in Burch cannot be extended to predictions utilizing non-pattern matching computer methods (e.g. the Jameson-Wolf Antigenic Index as disclosed in the instant application). The Jameson-Wolf Antigenic Index is a score that correlates several measures of secondary structure in order to predict putative epitopes and does not utilize pattern matching in its predictions. A discussion of the algorithm employed by the Jameson-Wolf Antigenic Index can found at http://helix.nih.gov/docs/gcg/peptidestructure.html (see Exhibit). Burch is silent with respect to the potential of such predictions.

Even assuming *arguendo* that the teachings of Burch suggests that the methods of predicting putative epitopes is unpredictable, Applicants assert that this conclusion would not be sufficient in itself to support a finding of undue experimentation. While the predictability of the

art can be considered in determining whether an amount of experimentation is undue, mere unpredictability of the result of the experiment is not a consideration. Indeed, the Court of Custom and Patent Appeals has specifically cautioned that the unpredictability of the result of an experiment is not a basis to conclude that the amount of experimentation is undue in *In re Angstadt*, 190 USPQ 214 (C.C.P.A. 1976):

> [If to fulfill the requirements of 112, first paragraph, an applicant's] disclosure must provide guidance which will enable one skilled in the art to determine, with reasonable certainty before performing the reaction whether the claimed product will be obtained, . . . then all "experimentation" is "undue" since the term "experimentation" implies that the success of the particular activity is uncertain. Such a proposition is contrary to the basic policy of the Patent Act.

Id. at 219 (emphasis in the original). As Judge Rich explained in *In re Vaeck*, 20 USPQ2d 1438, 1445 (Fed.Cir. 1991), the statutory enablement requirement is satisfied if the specification "adequately guides the worker to determine, without undue experimentation, which species among all those encompassed by the claimed genus possess the disclosed utility" (emphasis provided). Since the disclosed or otherwise known methods of making and screening polypeptides (including variants and fragments) may be used to make and then determine, without undue experimentation, whether a given polypeptide encompassed by the claims is immunogenic, and therefore possesses the disclosed utility, the enablement requirement is fully satisfied. *In re Wands*, 8 USPQ2d at 1404; *Ex parte Mark*, 12 USPQ2d 1904, 1906-1907 (B.P.A.I. 1989).

Applicants submit that the specification provides ample guidance for one of ordinary skill in the art to routinely make and use the claimed polypeptide fragments. In particular, the specification discloses the molecular characterization of the galectin polypeptides. The specification also describes the galectin polypeptide sequences (including fragments and variants). Figures 8-10 of the specification, disclose the antigenic index of the galtectin polypeptides predicted using the Jameson-Wolf computer program, predicting that specific regions of each of these proteins are antigenic. The specification further teaches methods for generating antibodies to the galectin polypeptides of the invention. Antibodies generated according to the methods disclosed in the specification may routinely be applied to determine

whether the galectin polypeptides (including fragments and variants) bind an antibody to the galectin polypeptides disclosed in Figures 1-4.

Given the foregoing teachings of the specification, it cannot be said that the invention as claimed is not enabled. Moreover, Applicants submit that the skilled protein chemist, molecular biologist, or immunologist, enlightened by the teaching of the present specification is more than capable of routinely generating the claimed polypeptides and determining whether a polypeptide encompassed by the claims is immunogenic. Accordingly, it is respectfully requested that the Examiner's rejection of the claims under 35 U.S.C. § 112, first paragraph, be reconsidered and withdrawn.

III. Double Patenting Rejections

The Examiner has rejected claim 169 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 23 of U.S. Patent No. 6,027,916. In response, Applicants have cancelled the claim, thereby obviating any rejection thereof. Accordingly, the instant rejection should be reconsidered and withdrawn.

Conclusion

Entry of the above amendment is respectfully solicited. In view of the foregoing amendment and remarks, Applicants believe they have fully addressed the Examiner's concerns and that this application is now in condition for allowance. An early notice to that effect is urged. The Examiner is invited to call the undersigned at the phone number provided below if any further action by Applicants would expedite the allowance of this application.

Should any additional fees be due, please charge the fees to our Deposit Account No. 08-3425. If a fee is required for an additional extension of time under 37 C.F.R. § 1.136, such an extension is requested and the appropriate fee should also be charged to our Deposit Account.

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Respectfully submitted,

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